

4.6 Slope-Intercept Form of Linear Equations

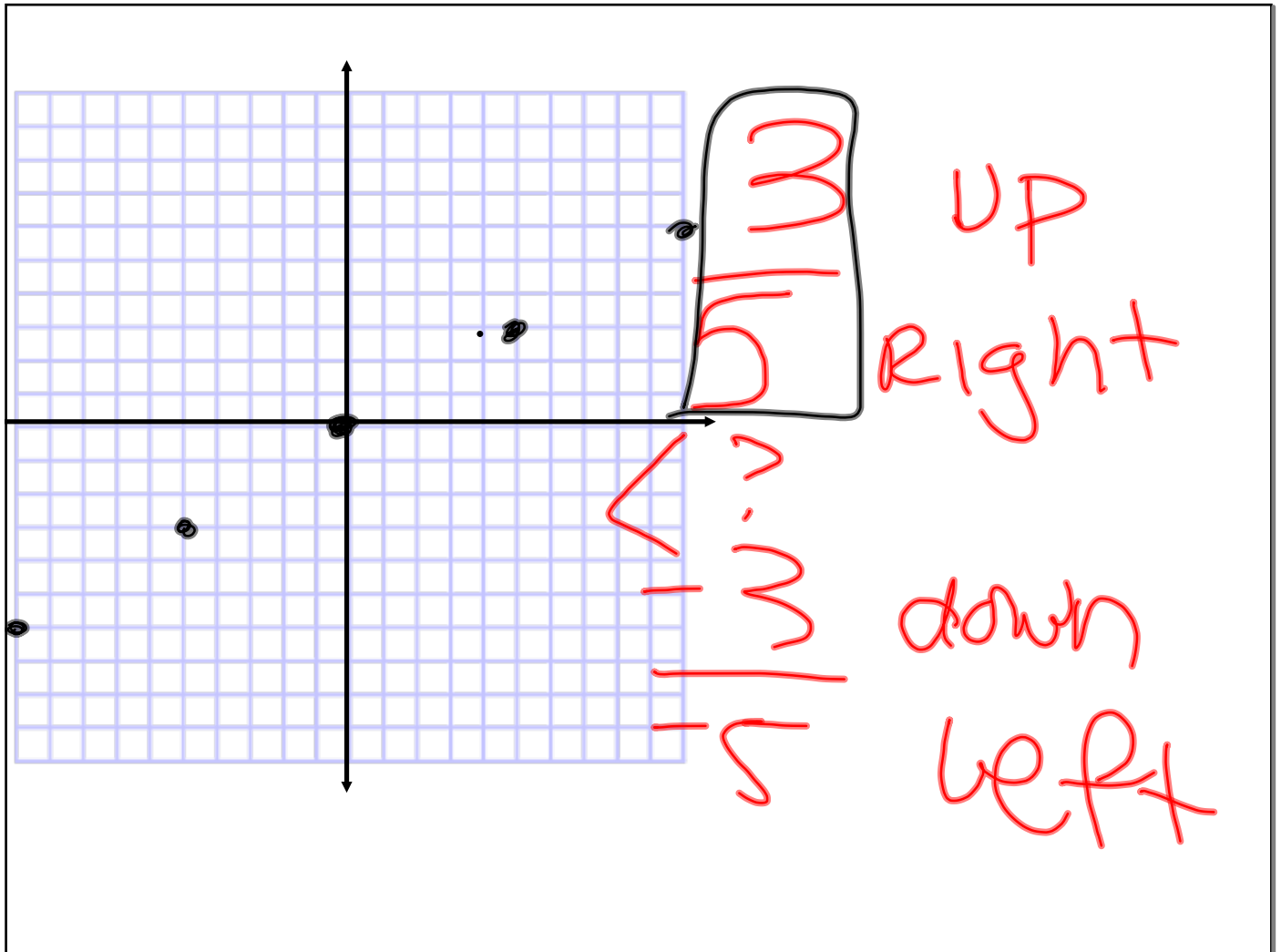
$$y = mx + b$$

$\frac{3}{5}$

$\frac{\text{Rise}}{\text{Run}}$

Slope (improper fraction)

y = intercept (on y-axis)



$$y = mx + b$$

In the formula, m is the _____
and b is the _____ .

The y-intercept is where the line
crosses _____ .

Identify the slope & the y-intercept for each equation.

1) $y = \frac{3}{4}x + 7$

$m = \frac{3}{4}$
 $b = 7$

2) $y = -\frac{1}{7}x + 2$

$m = -\frac{1}{7}$ $b = 2$

3) $y = -2x - 3$

$m = -2$ $b = -3$

4) $y = x - 6$

$m = 1$ $b = -6$

5) $y = -x + 12$

$m = -1$ $b = 12$

Rewrite each in slope-intercept form.
Then identify the slope and the y-intercept.

1) $3x + 4y = 8$ 2) $2x - y = -1$

$$\begin{array}{l} -3x \\ \hline \frac{4y}{4} = \frac{-3x}{4} + \frac{8}{4} \end{array}$$

3) $2x - 3y - 6 = 0$

$$m = -\frac{3}{4}$$

$$\rightarrow y = -\frac{3}{4}x + 2 \quad b = 2$$

Graphing Using Slope-Intercept Form

Edit

Reset

?

1

Rewrite in slope-intercept form, if necessary.

(function form)

2

Put the y-intercept point (b) on the y -axis.

3

Use the slope m and rise over run to plot more points.

4

Plot at least 3 points on your graph.

5

Use a straight-edge to draw your line.

Graph each equation using Slope-Intercept Form.

A) $2x + 3y - 4 = x + 5$

$-2x$

$-2x$

$$3y - 4 = -1x + 5$$

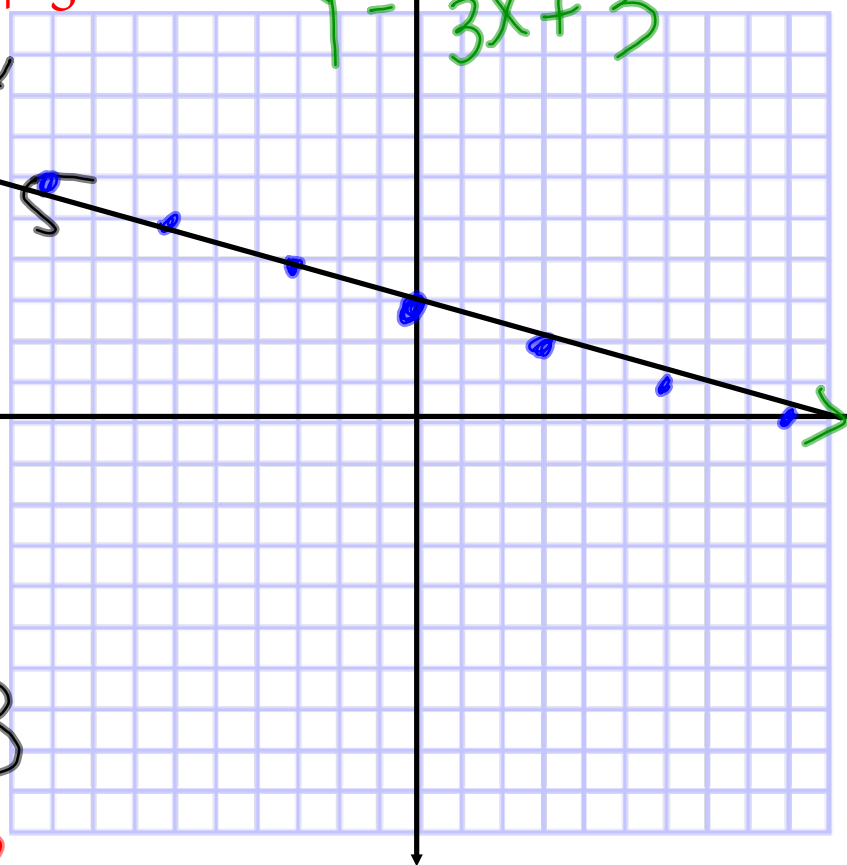
$$+4 \quad +4$$

$$\frac{3y}{3} = \frac{-1x}{3} + \frac{9}{3}$$

$$y = -\frac{1}{3}x + 3$$

$$m = -\frac{1}{3} \quad b = 3$$

$$y = -\frac{1}{3}x + 3$$



B) $4x - y - 3 = 0$

$$\begin{array}{rcl} -4x & & -4x \\ -y - 3 & = & -4x \end{array}$$

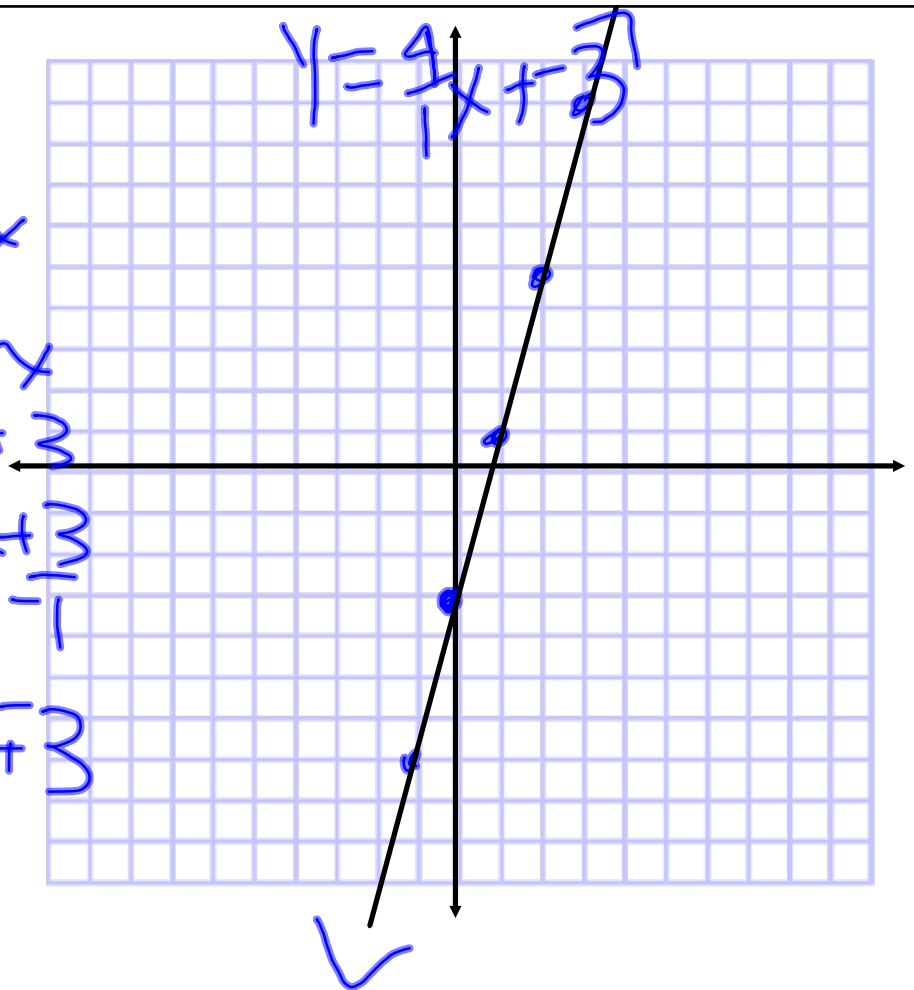
$$\begin{array}{rcl} +3 & & +3 \\ -y & = & -4x + 3 \end{array}$$

$$\frac{-y}{-1} = \frac{-4x + 3}{-1}$$

$$y = \frac{4}{1}x - 3$$

$$m = \frac{4}{1}$$

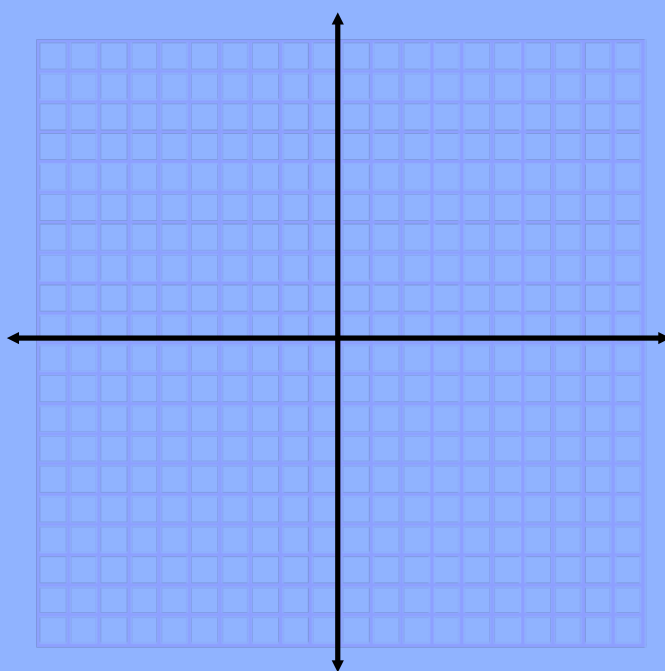
$$\boxed{b = -3}$$



Graph each line.

A) $3y = -9x - 15$

B) $6x + 2y = 8$



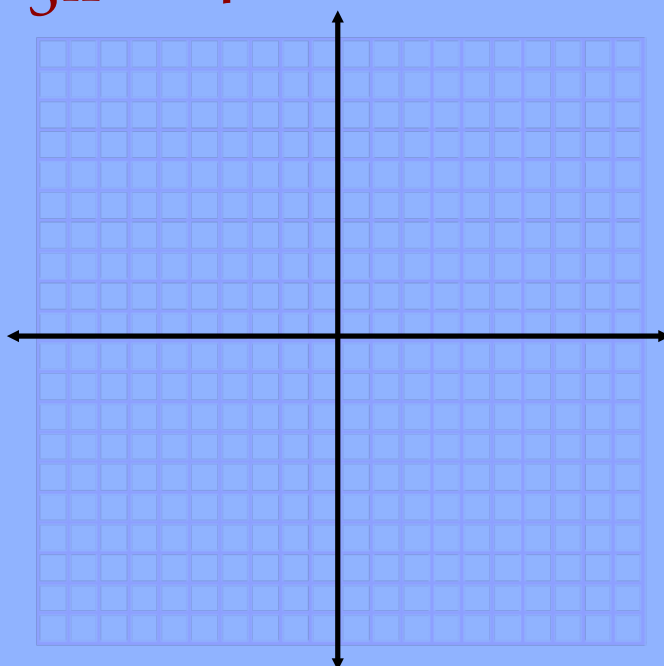
What do you notice about the lines?

What do you notice about their slopes?

Graph each line.

A) $y = -\frac{1}{3}x - 4$

B) $3x - y = -2$



What do you notice about the lines?

What do you notice about their slopes?

Planner Time!